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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/656,348	09/05/2003	Yukiko Kubota	SEAG 61977	7814

7590 07/12/2005  
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301 Grant Street  
Pittsburgh, PA 15219

EXAMINER

BERNATZ, KEVIN M

ART UNIT	PAPER NUMBER
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1773

DATE MAILED: 07/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/656,348

Applicant(s)

KUBOTA, YUKIKO

Examiner

Kevin M. Bernatz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 9-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/5/03+8/2/04</u> . | 6) <input type="checkbox"/> Other: ____.  |

**DETAILED ACTION*****Examiner's Comments***

1. Applicant recites the language "a first layer including at least one of Cu, Au, Ag, Al or copper alloys" with the apparent intent of distinguishing "Cu" from "copper alloys". However, the Examiner notes that since applicant's claims are open to additional elements and the Markush language recites "including at least one of", that "copper alloys" (i.e.  $Cu_xM_{1-x}$ , where  $M = 1 + \text{additional elements}$ ) are already covered by the language "including at least one of Cu". Similarly, the present claim language also encompasses Au alloys, Ag alloys and Al alloys. Should applicant wish to limit the material of the first layer to at least one of elemental copper, silver, gold, aluminum and copper alloys, applicant is suggested to reword the claim to recite "a first layer consisting of at least one of Cu, Au, Ag, Al or copper alloys".
2. Regarding claim 7, the Examiner notes that "ITO" and "ITO-Zn" have not been previously defined in the claims and should be spelled out to better clarify the claimed invention. For purposes of evaluating the prior art, the Examiner notes that "ITO" and "ITO-Zn" refer to "Indium-Tin-Oxide" and "Indium-Tin-Oxide-Zn", respectively.

***Election/Restrictions***

3. Applicant's election without traverse of claims 1 - 8 in the paper filed April 14, 2005 is acknowledged. Claims 9 – 21 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no

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allowable generic or linking claim. The requirement is still deemed proper and is therefore made FINAL.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1 – 6 are rejected under 35 U.S.C. 102(a) and/or (e) as being anticipated by Fukutani et al. (U.S. Patent App No. 2003/0072971 A1).

Regarding claim 1, Fukutani et al. disclose a thin film structure, comprising a first layer including at least one of Cu, Au, Ag, Al or copper alloys (*Figures 7A – 7F, element 7012 and Paragraph 0076 and 0077*), a second layer adjacent said first layer, said second layer including a metal oxide (*bottom of oxide pore – Paragraphs 0068, 0069, and 0142 - 0144*), and a third layer adjacent said second layer, said third layer including a magnetic material (*element 7017*).

Regarding claims 2 - 4, Fukutani et al. disclose third layers meeting applicant's claimed limitations (*Paragraphs 0059 - 0063*).

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Regarding claim 5, Fukutani et al. disclose a soft magnetic layer meeting applicant's claimed structural limitation (*Paragraph 0076*).

Regarding claim 6, Fukutani et al. disclose first layers meeting applicant's claimed thickness limitation (*Paragraph 0109*).

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukutani et al. as applied above, and further in view of Peng et al. (J. App. Phy., 87(9), 2000, 6358 – 6360).

Fukutani et al. is relied upon as described above.

Regarding claims 7 and 8, Fukutani et al. fail to disclose a second layer comprising ITO or ITO-Zn or a second layer meeting applicant's claimed thickness limitation.

However, Peng et al. teach that ITO meeting applicant's claimed thickness limitation have been used as seed layers for Co/Pt superlattice media exhibiting high coercivity and high squareness values (*Introduction section*).

Given that Fukutani et al. disclose that a wide variety of oxide materials can be used as the pore-forming structure, including Tin oxide (*Paragraphs 0068 – 0069*), the

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Examiner deems that it would therefore have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the device of Fukutani et al. to utilize a material meeting applicant's claimed composition limitation as taught by Peng et al., since leaving an ultrathin layer of such a material at the bottom of the pore would serve to function as a seed layer for Co/Pt superlattice media exhibiting high coercivity and high squareness values.

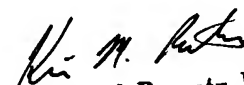
### ***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M Bernatz whose telephone number is (571) 272-1505. The examiner can normally be reached on M-F, 9:00 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KMB  
July 6, 2005

  
Kevin M. Bernatz, PhD  
Primary Examiner